Nos. 22-2069, -2070, -2071, -2072

IN THE
United States Court of Appeals
FOR THE FEDERAL CIRCUIT

MASIMO CORPORATION,

Appellant,

v.

APPLE INC.,

Appellee,

APPEAL FROM THE PATENT TRIAL AND APPEAL BOARD
CASE NOS. IPR2021-00193, IPR2021-00195, IPR2021-00208, IPR2021-00209

REPLY BRIEF OF APPELLANT MASIMO CORPORATION

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May 4, 2023

CERTIFICATE OF INTEREST

Counsel for Appellant Masimo Corporation certifies the following:

1. The full name of every party represented by me is:

Masimo Corporation.

2. The name of the real party-in-interest represented by me is:

Masimo Corporation.

3. All parent corporations and any publicly held companies that own more than 10 percent or more of the stock of the party represented by me are:

BlackRock Inc.

4. The name of all law firms and the partners or associates that appeared for the party in the lower tribunal or are expected to appear for the party in this court and who are not listed on the docket for the current case:

Knobbe, Martens, Olson & Bear, LLP: Jacob L. Peterson.

5. The case titles and numbers of any case known to be pending in this court or any other court or agency that will directly affect or be directly affected by this court's decision in the pending appeal:

- *Masimo Corporation v. Apple Inc.*, U.S. Court of Appeals for the Federal Circuit, Case No. 22-1631 (consolidated with Case Nos. 22-1632, 22-1633, 22-1634, 22-1635, 22-1636, 22-1637, 22-1638)

- *Masimo Corporation v. Apple Inc.*, U.S. Court of Appeals for the Federal Circuit, Case No. 22-1972 (consolidated with Case Nos. 22-1973, 22-1975, 22-1976)
- *Masimo Corporation and Cercacor Laboratories, Inc. v. Apple Inc.*, U.S. District Court for the Central District of California, Case No. 8:20-cv-00048-JVS

6. Information required under Fed. R. App. P. 26.1(b) (organizational victims in criminal cases) and 26.1(c) (bankruptcy case debtors and trustees):

None.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: May 4, 2023

/s/ Stephen W. Larson
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I. INTRODUCTION

Apple repeatedly invokes the substantial-evidence standard, but does so to obscure the Board's numerous errors. This Court does not hesitate to reverse or remand where, as here, the Board makes findings that are unsupported or the result of error. *See, e.g., Chemours Co. v. Daikin Indus.*, 4 F.4th 1370, 1376 (Fed. Cir. 2021); *TQ Delta, LLC v. Cisco Sys., Inc.,* 942 F.3d 1352, 1362 (Fed. Cir. 2019); *DSS Tech. Mgmt., Inc. v. Apple Inc*., 885 F.3d 1367, 1377 (Fed. Cir. 2018).

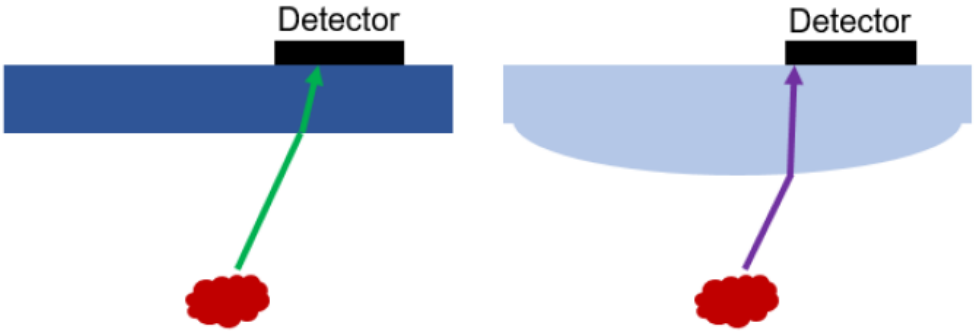
Contrary to Apple's arguments, Masimo does not ask this Court to "reconsider countless of the Board's fact-bound findings." Resp. 3. Masimo pointed to specific errors that independently support reversal or at least remand. The Board failed to reconcile numerous Apple admissions, ignored key portions of the prior art that expressly contradict the Board's findings, and adopted new and erroneous theories not argued by either party. As a result, the Board's findings are unsupported by, and contrary to, the evidence. No prior art discloses or suggests Masimo's innovative approach. This Court should reverse or at least remand.

II. ARGUMENT

Apple attempts to unnecessarily complicate this appeal. The Board's errors, however, are straightforward.

First, the Board found that a convex surface would redirect light in a way that directly contradicts Apple and its expert's admissions. Br. 20-23. The Board

never reconciled this inconsistency. Apple and its expert admitted a convex surface condenses light passing through it. Appx06494-06495; Appx07532-07533 ¶107; Appx04966-04967 83:15-84:2; Appx04969-04970 86:19-87:1; Appx05087 204:1-20.[1] The convex surface (below right) redirects light centrally compared to a flat surface (below left). Br. 21-22. Apple showed this condensing with the following illustrations.



Apple's Illustrations of Light-Redirection (Appx07533)

The Board, however, found the opposite: that a POSITA would have expected a convex cover would increase light at ***peripheral*** detectors compared to a flat cover. Appx00036; Appx00121; *see also* Appx00213; Appx00290. Apple suggests that the Board's analysis merely applied high-school physics. Resp. 25-26. But neither Apple nor the Board identified even a single reference that taught changing a flat cover into a convex one directs light peripherally. No such reference exists.

[1] Masimo provides representative citations to exhibits in view of common exhibits across IPRs unless otherwise noted.

Second, the Board erred in repeatedly finding the prior art discloses more than it actually discloses. Br. 24-29. The Board inferred from Inokawa's Figure 2 that a POSITA would have understood that placing a lens's "most pronounced curvature" "near" a detector could increase light collection. Appx00040; Appx00125; Appx00217; Appx00294. But Apple's expert testified that a POSITA would ***not*** have understood such details from that figure. Appx04957 74:10-15; Appx06411 218:15-17; *see also* Appx05224-05225 341:22-342:6; Appx06408 215:11-13; Appx04969-04970 86:19-87:6. Moreover, Inokawa's sensor has the ***opposite*** configuration of the Board's combination, placing a convex surface over a centrally located detector. Appx02437 ¶[0058]; Appx02445 Fig. 2; Br. 22. Apple's expert admitted that Inokawa's lens directs light centrally toward the detector and that the impact of repositioning Inokawa's optical components would not be "obvious." Appx07532-07533 ¶107; Appx04969-04970 86:19-87:6.

Third, the Board repeatedly made findings that conflict with the references' teachings. Br. 36-40. Aizawa teaches its sensor's flat cover improves adhesion at Aizawa's measurement site on the wrist's palm-side. Appx02401 ¶[0013]. In contrast, Ohsaki teaches its sensor's convex cover slips on the wrist's palm-side. Appx02511 ¶[0023]. The Board nevertheless found a POSITA seeking to improve adhesion would have modified Aizawa's flat cover into a convex one. Appx00051.

The Board's analysis is the product of hindsight reconstruction—not a POSITA's understanding of the art.

A. Substantial Evidence Does Not Support The Board's Finding That A POSITA Would Add A Protrusion To Improve Detection Efficiency

1. Substantial Evidence Does Not Support The Board's Finding That Inokawa Would Have Motivated A POSITA To Add A Convex Cover To Aizawa's Sensor To Improve Detection Efficiency

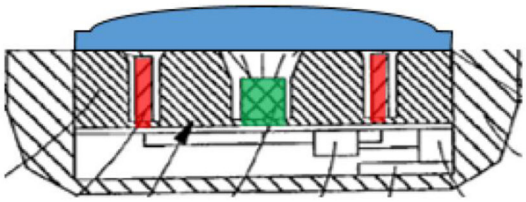
Apple does not dispute that Inokawa's sensor uses a convex surface to condense light toward a centrally located detector, and that Aizawa's detectors are instead located on the periphery. Resp. 22-23. Rather, Apple argues that a POSITA would have known to modify Inokawa's lens to place the "most pronounced curvature" "near" Aizawa's detectors. *Id*. 23. But Apple and the Board identified no such teaching in Inokawa or Aizawa. To the contrary, Apple's expert testified there is "***not*** enough information in [Inokawa's] drawing to identify a precise location or any particular precision around the concentration of the light." Appx04957 74:10-15 (emphasis added). Apple's expert also testified that the purported benefit of Inokawa's lens would not be "obvious" when applied to a different sensor with, e.g., peripherally located detectors and a centrally located emitter. Appx04969-04970 86:19-87:6. Apple's expert could not even explain the impact of a slight change in detector positioning on signal strength in the Board's combination. Appx05214-05215 331:19-332:11.

2. Apple's Arguments Do Not Correct The Deficiencies In The Board's "Most Pronounced Curvature" Theory

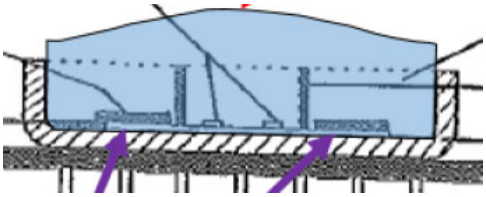
Apple argues the "most pronounced curvature" theory merely expands on Apple's petition arguments.[2] Resp. 24. That is incorrect. Apple's petitions and expert declarations repeatedly contended that a convex surface would direct light centrally. *See, e.g.*, Appx06494-06495; Appx07532-07533 ¶107. After Masimo confronted Apple with this flaw in the combinations, Apple fundamentally changed positions, disregarded its numerous prior admissions, and asserted new theories inconsistent with the previous positions. Br. 23-25.

Indeed, Apple asserted many different curve shapes in its related petitions with no regard whatsoever for the location of the "most pronounced curvature." *Id*. 25-27. Apple's petitions asserted that all the varying shapes provided improved light collection. *Id*. None of the petitions referenced the location of the most pronounced curvature.

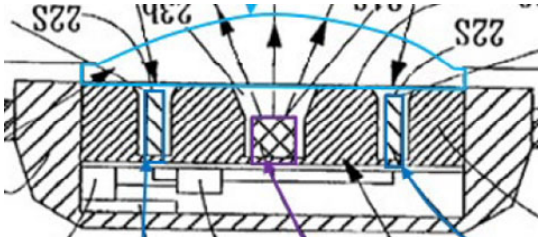
[2] Apple seemingly suggests that Masimo changed its terminology from the "greatest curvature" theory to the "most pronounced curvature" theory in different appeals without justification. Resp. 24 n.7. But it was the Board that changed terminology without explanation. Apple and the Board never explain the difference between a "greatest curvature" and a "most pronounced curvature." "Greatest" indicates a mathematical maximum while "most pronounced" indicates a most noticeable or striking feature. The Board's inconsistent terminology further evidences the lack of support for the Board's combinations.



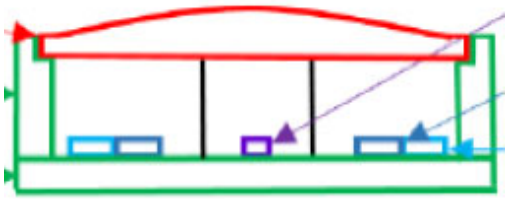
Aizawa-Inokawa Combination (Br. 25)



Mendelson-1988-Inokawa Combination in IPR208 (Br. 27)



Aizawa-Ohsaki Combination[3] (rotated)



Mendelson-799-Ohsaki Combination[4]

Apple argues that the Board's Aizawa-Inokawa combination (below left) in IPR208 is consistent with the "most pronounced curvature" theory because the combination shows a "most pronounced curvature" "near" the detectors. Resp. 28-29. But Apple also illustrated the Mendelson-1988-Inokawa combination (below right) in the same IPR with a completely different cover shape that is inconsistent with the Board's "most pronounced curvature" theory. Appx11796; Appx11830-11831; Appx11836.

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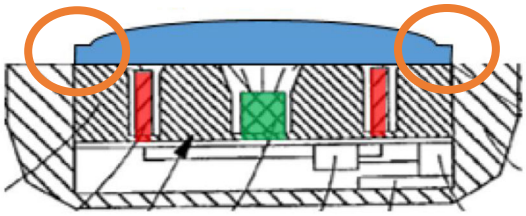
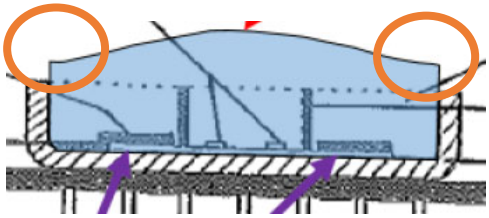
[3] *Apple Inc. v. Masimo Corp.*, No. IPR2020-01713, 2021 WL 1823926, at *9 (P.T.A.B. May 5, 2021).

[4] *Apple Inc. v. Masimo Corp.*, No. IPR2020-01536, 2022 WL 562452, at *13 (P.T.A.B. Feb. 23, 2022). Mendelson-799 is a reference cited by Apple in IPR193/195/208/209. Appx01284-01285; Appx06573-06575; Appx11867-11868; Appx17010-17011.



Aizawa-Inokawa Combination in IPR208 (annotated to highlight curvature near edge, Br. 25)



Mendelson-1988-Inokawa Combination in IPR208 (annotated to highlight curvature near edge, Br. 27)

Apple's petition asserted that the convex surface in both combinations similarly improve light collection. Appx11796; Appx11830-11831; Appx11836.

Apple argues the Board did not rely on "the geometric precision" of the combination's convex surface. Resp. 25-26. But Apple fails to reconcile that argument with its theory, adopted by the Board, requiring the "most pronounced curvature" "near" a specific location, i.e., the peripherally located detectors. In related IPR2020-01520,[5] the Board relied on detailed illustrations that add orthogonal lines over a proposed Aizawa-Inokawa combination as alleged evidence of increased light collection for the specific curve shape. *See Apple Inc. v. Masimo Corp.*, No. IPR2020-01520, 2022 WL 557896, at *21 (P.T.A.B. Feb. 23, 2022).

Apple argues the Board relied on "a widely-known principle of physics, taught in high school." Resp. 25. If a POSITA (or high school student) did, in fact, apply the type of analysis Apple suggests, surely there would be ***some***

[5] Now on appeal as Appeal No. 22-1631 (consol.).

reference supporting the Board's "most pronounced curvature" theory. No such reference exists.

Apple also argues the Board "was not required to identify a prior art reference that discloses 'increased light in a physiological sensor at peripheral detectors under a single protrusion' to show obviousness." *Id*. 27. But the Board relied on a reference disclosing the opposite configuration of the Board's combinations. Appx02437 ¶[0058]; Appx02445 Fig. 2. The Board found Inokawa's use of a convex surface to increase light at a centrally located detector would somehow have led a POSITA to place a convex surface over peripheral detectors. Appx00039; Appx00123; Appx00216; Appx00292-00293. The Board did so based on a contrived "most pronounced curvature" theory inconsistent with Apple's admissions and found nowhere in the prior art.

3. Apple Admits A Convex Surface Condenses Light Centrally

Apple admits that "a convex lens would generally cause incoming light to condense toward the center." Resp. 29. That admission is fatal and demonstrates that all of the Board's combinations are erroneous. Br. 22. A POSITA seeking to increase light collection would not have placed a convex lens over peripheral detectors. *Id*.

Apple nonetheless invokes the Board's "most pronounced curvature" reasoning to defend the Board's combinations. Resp. 28-29. But Apple's petition

filings never argued a POSITA would place the lens's "most pronounced curvature" at a particular location. Br. 23-25. As illustrated and discussed in Section II.A.2, Apple's many related filings showed combinations with many different convex surface shapes, irrespective of the position of any "most pronounced curvature" relative to detectors, arguing the combinations would improve light collection. Br. 25-27.

Apple separately invokes the "additional light-capture" theory and the "increase light everywhere" theory to argue the benefits of a convex lens might outweigh the undisputed loss of light from a lens's condensing function. Resp. 29. But, once again, neither theory appeared in Apple's petition filings. Br. 23-25. Apple cites no evidence or analysis demonstrating that Apple or its expert balanced the ***undisputed*** redirection of light centrally against the Board's unsupported "additional light-capture" and "increase light everywhere" theories. Resp. 29. Apple claims its expert testimony was "fully consistent" with these theories. *Id*. But Apple's expert repeatedly admitted a convex lens condenses light toward the center. Appx07532-07533 ¶107; Appx04966-04967 83:15-84:2; Appx04969-04970 86:19-87:1; Appx05087 204:1-20. Apple fails to explain how a convex lens could ***both*** (1) condense light by redirecting light centrally and (2) provide an "***improvement*** in the light concentration at pretty much ***all of the locations under***

the curvature of the lens." Resp. 29. Increasing light everywhere is not light "concentration."

4. Apple Admits Non-Combination Reference Nishikawa Motivated The Convex Surface Shape In The Board's Combinations

Far from a desire to place the "most pronounced curvature" at a particular location, Apple admits the combination's curve shape was "motivated" or "inspired by" the specific shape of non-combination reference Nishikawa (Appx02598-02605). Resp. 30. The Board acknowledged Nishikawa "motivated" and "inspired" the combination. Appx00041; Appx00125; Appx00218; Appx00295. The Board nonetheless excused Apple from showing a motivation to combine Nishikawa with the other references. Br. 29-30.

Apple embraces the Board's finding that a lens shape like Nishikawa's would "provide curvature in the lens where it can do the most good." Resp. 31-32. "[D]o the most good," however, is an aspirational and conclusory statement that cannot supply a valid motivation. *ActiveVideo Networks, Inc. v. Verizon Commc'ns, Inc.*, 694 F.3d 1312, 1328 (Fed. Cir. 2012). Even if it could, the Board failed to identify any teaching in Nishikawa or other record prior art explaining what "the most good" would be, much less showing that such a teaching would lead to Masimo's claims. Br. 30.

5. Apple Fails To Defend The Board's Inconsistent Findings Regarding Masimo's Dependent Claims (IPR195/208/209)

Apple argues Masimo waived its patentability arguments as to claims 12 and 14 of the '190 patent and claims 6 and 16 of the '266 and '191 patents. Resp. 32-33. Apple is incorrect. Masimo explained to the Board how Apple's admissions with respect to these dependent claims were inconsistent with Apple's new "most pronounced curvature" theory. Br. 46-48. Masimo highlighted to the Board that, under the "most pronounced curvature" theory, Apple's expert never explained how the combination's convex surface would reduce the mean path length of light. *Id*. 47. Masimo thus challenged the Board's sole factual support for these dependent claims, preserving Masimo's right to appeal when the Board invalidated the claims based on the unsupported reasoning that Masimo challenged.

On the merits, Apple attempts to support the invalidity of these claims by reembracing the admissions the Board discarded. Resp. 33-34. Specifically, Apple points to its expert's repeated admissions that a convex surface would refract and concentrate light toward the ***center***. *Id*. 34. But those admissions undermine all of the Board's combinations, which place a convex surface over peripheral detectors. Br. 22. The Board did not accept those admissions and instead embraced the new "most pronounced curvature" theory. *Id*. 47. Apple's expert never explained how the cover in the combinations would reduce the mean path length of light under the "most pronounced curvature" theory. *Id*. Indeed,

nowhere does Apple attempt to show why the cover would reduce the "mean" path length of light under the "most pronounced curvature" theory. Resp. 33-35.

Apple argues the combination's convex cover could ***both*** direct light centrally and increase light at the periphery. *Id*. 34-35. But Apple cites nothing in the Board's decisions reconciling these conflicting theories, particularly in the context of the dependent claims at issue here. *Id*. The Board instead rewrote Apple's expert declarations—the only evidence supporting a reduction in mean path length—as illustrating a single ***ray*** of light, as opposed to a ***mean*** reduction in light path length. Br. 47-48.

6. Substantial Evidence Does Not Support The Board's Finding That Inokawa Would Have Motivated A POSITA To Add A Protrusion To Mendelson-1988's Sensor To Increase Light Collection

Apple argues that Inokawa's teachings would have motivated a POSITA to use a convex lens to focus light on peripherally located detectors in Mendelson-1988's forehead sensor. Resp. 35-36. For the reasons explained above with respect to Aizawa and Inokawa, the Board's decisions with respect to Mendelson-1988 and Inokawa also lack substantial evidence. *See* Sections II.A.1-5. No evidence suggests a POSITA would have been motivated to place Inokawa's lens over Mendelson-1988's peripherally located detectors. Br. 41-42. Inokawa's lens would direct light away from peripheral detectors and cause user discomfort on Mendelson-1988's forehead sensor. *Id*.

Apple claims Masimo incorrectly argued that the Board should have found Mendelson's later work, including Mendelson-799 (Appx02610-02625), teaches away from the combination. Resp. 36. But Masimo explained how Mendelson's later work demonstrates that a POSITA would not have been motivated to place a convex surface over Mendelson-1988's forehead sensor. Br. 41-42. Accordingly, there is not only an absence of any evidence for a motivation to combine—there is also record evidence demonstrating a POSITA would ***not*** have adopted the Board's combination. *Id*.

B. Substantial Evidence Does Not Support The Board's Finding That Ohsaki Would Have Motivated A POSITA To Add A Convex Cover To Aizawa's Sensor To Improve Adhesion (IPR193)

Apple argues a convex cover's adhesion benefit "could apply…regardless of where on the body such a convex cover was placed." Resp. 43. But Ohsaki explains that a convex surface slips on the wrist's palm-side. Appx02511 ¶[0023]. Ohskai illustrates this phenomenon in Figures 3A-3B, which show that positioning a convex surface on the wrist's palm-side does not reduce slipping during movement or improve adhesion. Appx02509 Figs. 3A-3B; Br. 36-37. Thus, Apple's argument that it is "well understood" a convex surface provides an additional adhesive effect, Resp. 43-44, conflicts with Ohsaki itself, which illustrates and teaches that there is no such general phenomenon, Br. 36-37.

Apple argues the Board's combination could be positioned anywhere on the body. Resp. 43-44. But Aizawa specifically measures a signal from the wrist's arteries. Appx02402 ¶¶[0022]-[0027]; Appx02399 Fig. 2. There is no dispute the arteries are only accessible at the wrist's palm-side. Br. 32-33, 37-39. A POSITA would not have been motivated to change Aizawa's sensor in a way that results in slipping at Aizawa's measurement site. Br. 36. This is especially true because Aizawa expressly teaches a ***flat*** surface improves adhesion at its measurement site on the wrist's palm-side. Appx02401 ¶[0013].

Apple argues that its theory of obviousness was not limited to Aizawa's measurement location on the wrist's palm-side. Resp. 44. But the Board's combination modifies Aizawa's cover, Appx00051, and Aizawa's sensor is designed for a particular location, Br. 17. There is no evidence Aizawa's sensor would function on the wrist's backside where there are no accessible arteries. *Id*. Apple asserts the Board "credited" its expert's opinion that "the combination would work on either side of the wrist." Resp. 44-45. But the Board's finding relies on the erroneous understanding that a convex surface would improve performance on both the wrist's backside and palm-side. As discussed, Ohsaki expressly refutes that notion and instead teaches a convex surface slips on the wrist's palm-side. Appx02511 ¶[0023].

The Board's analysis also relied on its own new and unsupported theory that Aizawa's improved adhesion stems from the material used, not the flat shape. Appx00053-00054. Apple argues that the Board did not develop its own theory, but Apple identifies nowhere in the record that Apple or Masimo—or either party's experts—ever asserted that Aizawa's cover improves adhesion because of its acrylic material. Resp. 46. "[I]n the context of a contested case, it is impermissible for the Board to base its factual findings on its expertise, rather than on evidence in the record." *Brand v. Miller*, 487 F.3d 862, 869 (Fed. Cir. 2007).

C. Substantial Evidence Does Not Support The Board's Finding That A POSITA Would Have Had A Reasonable Expectation Of Success In Combining Aizawa Or Mendelson-1988 With Inokawa

Apple acknowledges the Board's "expectation of success" ruling relied on the Board's "most pronounced curvature" theory. Resp. 47-50. The Board's reliance on that theory was erroneous and unsupported for all the reasons discussed above. *See* Sections II.A.2-3. Apple argues Masimo demands a level of detail that is not required here. Resp. 49. But no detail is required to understand that a POSITA would not expect a convex surface over peripheral detectors to result in a successful physiological sensor. Br. 22. Apple's own admissions establish that such a combination would direct light away from peripheral detectors. Appx06494-06495; Appx07532-07533 ¶107; Appx05087 204:1-20; Appx04966-04967 83:15-84:2; Appx04969-04970 86:19-87:1.

Moreover, the detail that Apple complains about is the detail Apple's own expert testified would be ***necessary*** to provide any optical analysis of the Board's combinations. Br. 43-45 (collecting cites). Masimo extensively cited and quoted such testimony in its opening brief, identifying numerous complex factors. *Id*. Apple responds that arriving at a combination "would have been within the level of skill in the art." Resp. 48. But this Court's precedent requires "a clear, evidence-supported account of the contemplated workings of the combination," which is a "prerequisite to adequately explaining and supporting a conclusion that a relevant skilled artisan would have ... reasonably expect[ed] success." *Personal Web Techs., LLC v. Apple Inc.*, 848 F.3d 987, 994 (Fed. Cir. 2017). Apple identifies no such description in the record.

Apple argues the Board properly rejected Masimo's arguments because Masimo's "patents fail to provide the detail Masimo demands from the prior art." Resp. 49-50. Apple cites *In re Epstein*, 32 F.3d 1559, 1568 (Fed. Cir. 1994), but in that case, the Board rejected a patentee's argument that the prior-art contained insufficient detail to be enabling where the patentee's ***specification*** provided no such details. Here, Masimo's shared specification contains more than sixty pages of figures and twenty pages of detailed disclosure. *See, e.g.*, Br. 8-12; Appx00317-00413; Appx00414-00510; Appx00511-00607; Appx00608-00704. Apple's arguments never address that description.

Apple claims "Masimo does not address" a POSITA's expectation of success "with respect to including multiple emitters" or "improving adhesion." Resp. 47 n.11. Apple is incorrect and misstates the relevant issue: whether a POSITA would have reasonably expected the Board's combinations to result in an effective physiological sensor, as claimed. Br. 42-46. Masimo directly addressed that issue in its opening brief. *Id.*

D. Substantial Evidence Does Not Support The Board's Finding That A POSITA Would Have Been Motivated To Create A Sensor With Multiple Emitters And Multiple Detectors (IPR208/209)

1. The Board Improperly Relied On Ordinary Creativity To Supply A Missing Limitation

Apple argues the Board did not rely on an artisan's creativity to supply the limitation of a sensor with both multiple emitters and multiple detectors. Resp. 36-38. But neither Inokawa nor Aizawa discloses a sensor with both a plurality of emitters and a plurality of detectors. Br. 48. Instead, Inokawa teaches a physiological sensor with a single centrally located detector between two peripheral emitters. Appx02437 ¶[0058]. Aizawa likewise teaches a sensor with a single centrally located detector surrounded by multiple peripheral emitters. Appx02402-2403 ¶[0033]. In the alternative, Aizawa teaches a single centrally located emitter surrounded by multiple peripheral detectors. Appx02402 ¶[0032].

Apple cites the Board's finding that a POSITA "would have known" to modify Aizawa's embodiment with multiple peripheral detectors and one emitter

into a multi-emitter, multi-detector sensor. Resp. 38. But that citation only confirms that the Board used ordinary creativity to supply a missing limitation. Apple also asserts that "Masimo assumes the combination must bodily incorporate Inokawa's device into Aizawa's device." *Id*. But the issue is not bodily incorporation—the issue is that neither Aizawa nor Inokawa discloses a multi-emitter, multi-detector sensor. *See DSS Tech. Mgmt.,* 885 F.3d at 1377 ("[o]rdinary creativity" cannot satisfy "a limitation missing from the prior art references specified."). Instead, both references teach arrangements with multiple emitters surrounding a single centrally located detector or multiple detectors surrounding a single centrally located emitter. Br. 48-49.

2. The Board Relied On Expert Testimony Invoking A Reference With One LED To Identify A Benefit For Using Two LEDs

Apple argues that the Board appropriately credited its expert's testimony that "using two LEDs to calculate a user's pulse and motion ***separately*** would enable the device to calculate a 'more reliable' pulse rate." Resp. 39-40. But Apple's expert's sole support that a second LED would "better isolate" pulse data is non-combination reference Nanba (Appx12968-12988). Appx12732-12734 ¶¶71-73; Appx17801-17803 ¶¶71-73. Apple never disputes that Nanba uses ***one LED*** and not two LEDs. Resp. 40. Nanba fails to disclose any benefit to adding another LED to its one LED. Br. 49-50. Apple argues that its expert only cited Nanba "intermittently." Resp. 40. But an opinion based on an undisputedly

erroneous reading of a reference does not provide substantial evidence support for the Board's findings.

Apple also argues the Board found Apple's expert testimony "stands unrebutted." *Id*. Not so. Masimo's expert responded to Apple's expert's testimony by explaining the modification was not an improvement because Aizawa already included motion-sensing functionality. Appx15039 ¶84; Appx20108 ¶84. Apple's expert never explained why Inokawa's approach for handling motion would purportedly be superior to Aizawa's approach. The Board erroneously relied on its own "intuitive sense" rather than a POSITA's understanding. *See, e.g.,* Appx00195, Appx00271. There is no supporting evidence that the combination's configuration, which positions multiple emitters inside a ring of detectors, would provide the alleged benefit. The Board erred by relying on its own intuition and on expert testimony that misunderstood the art.

3. A POSITA Would Not Have Been Motivated To Combine Inokawa And Aizawa To Upload Pulse Data

Apple also defends the Board's finding of a motivation to create a multi-emitter/multi-detector sensor based the motivation "to reliably upload pulse data from Aizawa's detector to another device for display." Resp. 41. But Aizawa already has wireless transmission and, thus, there would have been no motivation to implement Inokawa's cumbersome base-station approach, particularly given Aizawa's goal of real-time measurements. Br. 50-51. Apple asserts that Aizawa's

disclosure that heart-rate is measured in real-time" is "contrasted with its silence as to when pulse rate data is transmitted for display." Resp. 42 (emphasis omitted). But Apple does even attempt to explain how heart rate could be measured in anything but real-time. A POSITA would not interpret Aizawa as merely teaching the measurement of heart rate in real-time. Indeed, Apple's expert acknowledged Aizawa's broader emphasis on real-time data, including for display, explaining that Aizawa's sensor is for real-time heart rate measurements during ***exercise***. Appx05285 402:6-11; Appx02211-02212 ¶91. Aizawa never discloses a memory module or storing data for ***later*** transfer. *See, e.g.*, Appx02402-02403 ¶¶[0023], [0028], [0035] (disclosing transmitting to a display but not storage).

Apple next argues that "even if the combination has disadvantages," including the use of a cumbersome base station, there are offsetting benefits that nevertheless would have made it obvious. Resp. 42. But the Board's modification fundamentally changes Aizawa's sensor and eliminates the functionality for concomitant real-time heart rate monitoring and data display. There is no indication that Aizawa's sensor had any transmission problems that would require the use of a base station. And the alleged benefit of "obviating the need for the wrist-worn sensor to include a special wireless circuit," Resp. 42, (1) eliminates real-time monitoring since the sensor must be removed before data transmission; (2) requires a cumbersome base station for transmitting data; thus (3) driving up

cost and device complexity. Substantial evidence does not support that a POSITA would have been motivated to make such extreme modifications.

III. CONCLUSION

For the reasons set forth above and in Masimo's opening brief, the Court should reverse or at least remand the Board's decisions.

Respectfully submitted,

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CERTIFICATE OF COMPLIANCE

1. This brief complies with the type-volume limitation of Federal Rule of Appellate Procedure 32(a). This brief contains 4,199 words, excluding the parts of the brief exempt by Federal Rule of Appellate Procedure 32(f) and Federal Circuit Rule 32(b)(2).

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